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L1: Entry 19 of 30

File: USPT

Aug 10, 1999

US-PAT-NO: 5935818

DOCUMENT-IDENTIFIER: US 5935818 A

TITLE: Isolated nucleic acid molecule encoding alternatively spliced  
prostate-specific membrane antigen and uses thereof

DATE-ISSUED: August 10, 1999

US-CL-CURRENT: 435/69.3; 435/252.3, 435/320.1, 435/325, 435/348, 435/362,  
435/365, 536/23.5, 536/24.1

APPL-NO: 8/ 394152

DATE FILED: February 24, 1995

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L1: Entry 3 of 3

File: USPT

Feb 1, 2000

US-PAT-NO: 6020172

DOCUMENT-IDENTIFIER: US 6020172 A

TITLE: Nucleic acid delivery with ovine adenoviral vectors

DATE-ISSUED: February 1, 2000

## INVENTOR-INFORMATION:

| NAME               | CITY       | STATE | ZIP CODE | COUNTRY |
|--------------------|------------|-------|----------|---------|
| Both; Gerald Wayne | North Ryde | N/A   | N/A      | AUX     |

US-CL-CURRENT: 435/91.41; 435/235.1, 435/320.1, 435/366, 435/371, 435/372,  
435/455, 435/456

## CLAIMS:

I claim:

1. A method of delivering a nucleic acid molecule to a human cell comprising exposing the cell to a viral vector comprising:  
a DNA molecule that comprises the genome of ovine adenovirus OAV287; and  
at least one nucleic acid molecule to be expressed in the cell, such that the viral vector enters the cell and the cell expresses the nucleic acid molecule.
2. The method according to claim 1, wherein no virus replication occurs in the cell.
3. The method according to claim 1, wherein no early or late viral gene expression occurs in the cell.
4. The method according to claim 1, wherein the nucleic acid molecule is selected from the group consisting of oncogenes, tumor suppressor genes, antisense and ribozyme RNAs, genes encoding enzymes, genes encoding cytokines and other immune-modulating macromolecules, genes encoding recombinant antibodies, genes encoding lytic peptides, genes encoding vaccine antigens, genes encoding macromolecules which complement genetic defects in somatic cells, and genes encoding macromolecules which catalyze processes leading to cell death.
5. The method according claim 1, wherein the viral vector includes a cell-specific promoter operably linked to the nucleic acid molecule such that the nucleic acid molecule is expressed only in a desired target cell.
6. The method according to claim 1, wherein the viral vector is OAV211 comprising a PSA/PNPase/SV40 poly A cassette as the nucleic acid molecule to be delivered to the cell.
7. The method according to claim 1, wherein the viral vector has one or more coding regions for a coat protein of the ovine adenovirus genome, which are modified or altered.
8. The method according to claim 4, wherein the nucleic acid molecule encodes an enzyme that metabolizes a pro-drug.
9. The method according to claim 8 wherein the nucleic acid molecule encodes prokaryotic purine nucleoside phosphorylase (PNPase) and the pro-drug is 6-methyl-purine-2'-deoxyribonucleoside (6MPDR) or fludarabine.
10. The method according to claim 5, wherein the cell-specific promoter is selected from the group consisting of the rat probasin, human PSA, PSMA, erbB-2, and CEA promoters.

11. The method according to claim 10, wherein the target cell is a human prostate or breast cancer cell.
12. The method according to claim 7, wherein the coding region for the modified or altered coat protein is selected from the group consisting of fiber, hexon, and penton base proteins.
13. The method according to claim 7, wherein the modification involves the replacement of coding regions for specific ovine adenoviral proteins or parts thereof with the equivalent coding regions for proteins or parts thereof from other adenoviruses.
14. The method according to claim 7, wherein the viral vector is OAV206/Ad5f.
15. The method according to claim 7, wherein the viral vector is OAV206/Ad5p.
16. The method according to claim 7 wherein the viral vector is OAV206/Ad5f/Ad5p.
17. The method according to claim 12 such that the modification results in the vector having binding-specificity for a desired target cell.
18. A viral vector OAV211 comprising the genome of ovine adenovirus OAV287 modified to include a nucleic acid molecule comprising a PSA/PNPase/SV40 poly A cassette.
19. A viral vector OAV206/Ad5f comprising a modified genome of ovine adenovirus OAV287 such that the viral vector expresses a hybrid ovine/human adenovirus type 5 fiber protein Ad5f and not a wild type ovine adenovirus fiber protein.
20. A viral vector OAV206/Ad5p comprising a modified genome of ovine adenovirus OAV287 such that the viral vector expresses a hybrid ovine/human adenovirus type 5 penton protein Ad5p and not a wild type ovine adenovirus penton protein.
21. A viral vector OAV206/Ad5f/Ad5p comprising a modified genome of ovine adenovirus OAV287 such that the viral vector expresses hybrid ovine/human adenovirus type 5 fiber protein Ad5f and penton protein Ad5p not wild type ovine adenovirus fiber and penton proteins.
22. A method of producing a viral vector for expression of a nucleic acid molecule in a human cell, the method comprising:  
constructing a plasmid by cloning a full length copy of the genome of ovine adenovirus OAV287 into a plasmid;  
adding to the plasmid an expression cassette comprising a nucleic acid molecule to be expressed in the human cell;  
transfecting a producer cell with the plasmid such that the viral vector is produced by the cell; and recovering the viral vector.
23. A method of delivering a recombinant nucleic acid molecule to a human cell, the method comprising contacting the cell with a biologically active, naturally assembled capsid of ovine adenovirus OAV287 containing the recombinant nucleic acid molecule, such that the capsid enters the cell and the cell expresses the recombinant nucleic acid molecule.
24. The method according to claim 23, wherein no virus replication occurs in the cell.
25. The method according to claim 23, wherein no early or late viral gene expression occurs in the cell.
26. The method according to claim 23, wherein the recombinant nucleic acid molecule comprises nucleotide sequences selected from the group consisting of genes coding for oncogenes, tumor suppressor genes, antisense and ribozyme RNAs, genes encoding enzymes, genes encoding cytokines and other immune modulating macromolecules, genes encoding recombinant antibodies, genes encoding lytic peptides, genes encoding vaccine antigens, genes encoding macromolecules which complement genetic defects in somatic cells, and genes encoding macromolecules which catalyze processes leading to cell death.
27. The method according claim 23, wherein the recombinant nucleic acid molecule includes a nucleotide sequence encoding a cell-specific promoter operably linked to a coding nucleotide sequence such that the coding nucleotide sequence is expressed only in a desired target cell.
28. The method according to claim 23, wherein the ovine adenoviral capsid has one or more coat proteins modified or altered.
29. The method according to claim 26, wherein the recombinant nucleic acid molecule comprises a nucleotide sequence encoding an enzyme which metabolizes a pro-drug.
30. The method according to claim 29, wherein the enzyme is prokaryotic purine nucleoside phosphorylase (PNPase) and the pro-drug is

6-methyl-purine-2'-deoxyribonucleoside (6MPDR) or fludarabine.

31. The method according to claim 27, wherein the cell-specific promoter is selected from the group consisting of the rat probasin, human PSA, PSMA, erbB-2, and CEA.

32. The method according to claim 31, wherein the target cell is a human prostate or breast cancer cell.

33. The method according to claim 31, wherein the recombinant nucleic acid molecule comprises nucleotide sequences coding for the PSA promoter linked to the PNP gene.

34. The method according to claim 28, wherein the modified or altered coat protein is selected from the group consisting of fiber, hexon, and penton base proteins.

35. The method according to claim 28, wherein the modification involves the replacement of specific ovine adenoviral coat proteins or parts thereof with the equivalent coat proteins or parts thereof from adenoviruses.

36. The method according to claim 34, such that the modification or alteration results in the capsid having binding-specificity for a desired target cell.

37. The method according to claim 34, wherein the capsid contains a hybrid ovine/human adenovirus type 5 fiber protein Ad5f and not a wild type ovine adenovirus fiber protein.

38. The method according to claim 34, wherein the capsid contains a hybrid ovine/human adenovirus type 5 penton protein Ad5p and not a wild type ovine adenovirus penton protein.

39. The method according to claim 34, wherein the capsid carries hybrid ovine/human adenovirus type 5 fiber protein Ad5f and penton protein Ad5p and not wild type ovine adenovirus fiber and penton proteins.

40. A biologically active, naturally assembled viral particle comprising a capsid of ovine adenovirus OAV287 and a recombinant nucleic acid molecule to be delivered to a human cell.

41. The viral particle according to claim 40, wherein the recombinant nucleic acid molecule comprises nucleotide sequences selected from the group consisting of genes coding for oncogenes, tumor suppressor genes, antisense and ribozyme RNAs, genes encoding enzymes, genes encoding cytokines and other immune modulating macromolecules, genes encoding recombinant antibodies, genes encoding lytic peptides, genes encoding vaccine antigens, genes encoding macromolecules which complement genetic defects in somatic cells, and genes encoding macromolecules which catalyze processes leading to cell death.

42. The viral particle according to claim 40, wherein the recombinant nucleic acid molecule comprises a nucleotide sequence encoding an enzyme which metabolizes a pro-drug.

43. The viral particle according to claim 40, wherein the recombinant nucleic acid molecule comprises a nucleotide sequence encoding a cell-specific promoter operably linked to a coding nucleotide sequence such that the coding nucleotide sequence is expressed only in a desired target cell.

44. The viral particle according to claim 40, wherein the recombinant nucleic acid molecule comprises a nucleotide sequence encoding a PSA/PNPase/SV40 poly A cassette.

45. The viral particle according to claim 42, wherein the enzyme is prokaryotic purine nucleoside phosphorylase (PNPase) and the pro-drug is 6-methyl-purine-2'-deoxyribonucleoside (6MPDR) or fludarabine.

46. The viral particle according to claim 43, wherein the target cell is a human prostate or breast cancer cell.

47. The viral particle according to claim 43, wherein the cell-specific promoter is selected from the group consisting of the rat probasin, human PSA, PSMA, erbB-2, and CEA.

48. The viral particle according to claim 46, wherein the recombinant nucleic acid molecule comprises nucleotide sequences coding for the PSA promoter linked to the PNP gene.

49. A biologically active, naturally assembled viral particle comprising a capsid of ovine adenovirus OAV287 and a recombinant nucleic acid molecule to be delivered to a human cell, wherein the capsid contains a hybrid ovine/human adenovirus type 5 fiber protein Ad5f and not wild-type ovine adenovirus fiber protein.

50. A biologically active, naturally assembled viral particle comprising a capsid of ovine adenovirus OAV287 and a recombinant nucleic acid molecule to be

delivered to a human cell, wherein the capsid contains a hybrid ovine/human adenovirus type 5 penton protein Ad5p and not wild-type ovine adenovirus penton protein.

51. A biologically active, naturally assembled viral particle comprising a capsid of ovine adenovirus OAV287 and a recombinant nucleic acid molecule to be delivered to a human cell, wherein the viral particle contains a hybrid ovine/human adenovirus type 5 fiber protein Ad5f and penton protein Ad5p and not wild-type ovine adenovirus fiber and penton proteins.

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L2: Entry 1 of 3

File: USPT

Jun 27, 2000

US-PAT-NO: 6080725

DOCUMENT-IDENTIFIER: US 6080725 A

TITLE: Immunostimulating and vaccine compositions employing saponin analog adjuvants and uses thereof

DATE-ISSUED: June 27, 2000

## INVENTOR-INFORMATION:

| NAME               | CITY       | STATE | ZIP CODE | COUNTRY |
|--------------------|------------|-------|----------|---------|
| Marciani; Dante J. | Birmingham | AL    | N/A      | N/A     |

US-CL-CURRENT: 514/26; 424/184.1, 514/25, 536/4.1, 536/5

|      |       |          |       |        |                |      |           |        |      |           |       |
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| Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image |
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☐ 2. Document ID: US 6020172 A

L2: Entry 2 of 3

File: USPT

Feb 1, 2000

US-PAT-NO: 6020172

DOCUMENT-IDENTIFIER: US 6020172 A

TITLE: Nucleic acid delivery with ovine adenoviral vectors

DATE-ISSUED: February 1, 2000

## INVENTOR-INFORMATION:

| NAME               | CITY       | STATE | ZIP CODE | COUNTRY |
|--------------------|------------|-------|----------|---------|
| Both; Gerald Wayne | North Ryde | N/A   | N/A      | AUX     |

US-CL-CURRENT: 435/91.41; 435/235.1, 435/320.1, 435/366, 435/371, 435/372, 435/455, 435/456

|      |       |          |       |        |                |      |           |        |      |           |       |
|------|-------|----------|-------|--------|----------------|------|-----------|--------|------|-----------|-------|
| Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image |
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☐ 3. Document ID: US 5925362 A

L2: Entry 3 of 3

File: USPT

Jul 20, 1999

US-PAT-NO: 5925362  
DOCUMENT-IDENTIFIER: US 5925362 A

TITLE: Method to elicit an antitumor response with human prostate-specific antigen

DATE-ISSUED: July 20, 1999

INVENTOR-INFORMATION:

| NAME                   | CITY     | STATE | ZIP CODE | COUNTRY |
|------------------------|----------|-------|----------|---------|
| Spitler; Lynn E.       | Tiburon  | CA    | N/A      | N/A     |
| Maida, III; Anthony E. | Danville | CA    | N/A      | N/A     |

US-CL-CURRENT: 424/277.1; 424/184.1, 424/450, 424/520, 424/559, 424/812,  
424/93.2, 514/44

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | RMIC | Draw Desc | Image |
|------|-------|----------|-------|--------|----------------|------|-----------|--------|------|-----------|-------|
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L1: Entry 2 of 30

File: USPT

Aug 22, 2000

US-PAT-NO: 6107090

DOCUMENT-IDENTIFIER: US 6107090 A

TITLE: Treatment and diagnosis of prostate cancer with antibodies to  
extracellur PSMA domains

DATE-ISSUED: August 22, 2000

US-CL-CURRENT: 435/344; 424/138.1, 424/155.1, 424/174.1, 424/181.1, 435/7.23,  
435/810, 435/975, 530/387.7, 530/388.8, 530/391.3

APPL-NO: 8/ 838682

DATE FILED: April 9, 1997

## PARENT-CASE:

The present application claims the benefit of U.S. Provisional Patent  
Application Ser. No. 60/016,976, filed May 6, 1996, and U.S. Provisional  
Patent Application Ser. No. 60/022,125, filed Jul. 18, 1996.